

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

Lerchl et al.

Atty. Ref.: **3557-13**

Serial No. **10/089,370**

Group: **Unassigned**

National Phase of: **PCT/EP00/09839**

International Filing Date: **7 October 2000**

Filed: **March 29, 2002**

Examiner: **Unassigned**

For: **PLANT PRPP AMIDOTRANSFERASE**

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Assistant Commissioner for Patents
Washington, DC 20231

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Sir:

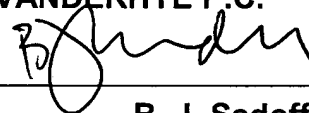
SUBMISSION

Attached is an English translation of the International Preliminary Examination
Report for the Examiner's consideration.

Respectfully submitted,

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By:



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NOTIFICATION OF TRANSMITTAL
OF COPIES OF TRANSLATION
OF THE INTERNATIONAL PRELIMINARY
EXAMINATION REPORT

(PCT Rule 72.2)

From the INTERNATIONAL BUREAU

To:

BASF AKTIENGESELLSCHAFT
67056 Ludwigshafen
ALLEMAGNE

AST

Date of mailing (day/month/year) 22 May 2002 (22.05.02)	
Applicant's or agent's file reference 0050/050796	IMPORTANT NOTIFICATION
International application No. PCT/EP00/09839 ✓	International filing date (day/month/year) 07 October 2000 (07.10.00) ✓
Applicant BASF AKTIENGESELLSCHAFT et al	

1. Transmittal of the translation to the applicant.

The International Bureau transmits herewith a copy of the English translation made by the International Bureau of the international preliminary examination report established by the International Preliminary Examining Authority.

2. Transmittal of the copy of the translation to the elected Offices.

The International Bureau notifies the applicant that copies of that translation have been transmitted to the following elected Offices requiring such translation:

CA,CN,JP,KP,KR,US

The following elected Offices, having waived the requirement for such a transmittal at this time, will receive copies of that translation from the International Bureau only upon their request:

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3. Reminder regarding translation into (one of) the official language(s) of the elected Office(s).

The applicant is reminded that, where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report.

It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned (Rule 74.1). See Volume II of the PCT Applicant's Guide for further details.

The International Bureau of WIPO 34, chemin des Colombettes 1211 Genève 20, Switzerland	Authorized officer Olivia TEFY
Facsimile No. (41-22) 740.14.35	Telephone No. (41-22) 338.83.38

Translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 0050/050796	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP00/09839	International filing date (<i>day/month/year</i>) 07 October 2000 (07.10.00)	Priority date (<i>day/month/year</i>) 11 October 1999 (11.10.99)
International Patent Classification (IPC) or national classification and IPC C12N 9/10		
Applicant BASF AKTIENGESELLSCHAFT		

<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>9</u> sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of <u>1</u> sheets.</p>	
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the report</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input checked="" type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input checked="" type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>	

Date of submission of the demand 30 April 2001 (30.04.01)	Date of completion of this report 11 February 2002 (11.02.2002)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/EP00/09839

I. Basis of the report

1. This report has been drawn on the basis of (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.*):

- ☒ the international application as originally filed.
- ☐ the description, pages 1-30, as originally filed,
 pages _____, filed with the demand,
 pages _____, filed with the letter of _____,
 pages _____, filed with the letter of _____.
- ☐ the claims, Nos. 1-7,9-11,13-17, as originally filed,
 Nos. _____, as amended under Article 19,
 Nos. _____, filed with the demand,
 Nos. 8,12, filed with the letter of 21 January 2002 (21.01.2002),
 Nos. _____, filed with the letter of _____.
- ☐ the drawings, sheets/fig 1/4-4/4, as originally filed,
 sheets/fig _____, filed with the demand,
 sheets/fig _____, filed with the letter of _____,
 sheets/fig _____, filed with the letter of _____.

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/fig _____

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

4. Additional observations, if necessary:

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: BOX III

Claims 13-16

The subject matter of Claims 13-16 has not been searched.
Consequently, nor has an examination been carried out
(PCT Rule 66.1(e)).

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Box IV.3.

The international search report relates to the subject matter of Claims 1-12 and 17. The International Preliminary Examining Authority is of the view, however, that the subject matter of the application lacks unity of invention (PCT Article 34(3), PCT Rules 13 and 68).

The application consists of two groups of inventions:

The first invention concerns Claims 1-17 (all in part). The invention relates to the DNA sequence of SEQ ID NO:1, the protein sequence of SEQ ID NO:2, the use of this DNA sequence, a process and a test system for finding and identifying substances which inhibit the activity of the protein, inhibitors of the protein, a process for preventing undesirable plant growth by inhibiting the activity of the protein of SEQ ID NO:2 and to a plant with additional expression of the DNA sequence of SEQ ID NO:1.

The second invention concerns Claims 1-17 (all in part). The invention relates to the DNA sequence of SEQ ID NO:3, the protein sequence of SEQ ID NO:4, the use of this DNA sequence, a process and a test system for finding and identifying substances which inhibit the activity of the protein, inhibitors of the protein, a process for preventing undesirable plant growth by inhibiting the activity of the protein of SEQ ID NO:4 and to a plant with additional expression of the DNA sequence of SEQ ID NO:3.

The inventions are not so linked that they form a single

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Box IV.3.

general inventive concept (PCT Rule 13.1). This general concept is that of DNA sequences which code for PRPP amidotransferase proteins.

This general concept is not inventive since it is clear from document D3 that PRPP amidotransferase proteins have already been isolated in animals, plants and microorganisms.

The requisite unity of invention is not established (PCT Rule 13.1) since there is no technical relationship in accordance with PCT Rule 13.2 between the subjects of the groups of dependent claims involving one or more of the same or corresponding technical features.

The Examining Authority is of the view that the present claims can be examined in their entirety at a reasonable cost. Consequently, the applicant is not requested to pay additional fees or to restrict the subject matter of the application. The applicant should note, however, that an objection can be raised during the regional phase owing to a lack of unity of invention.

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability:
citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-12, 17	YES
	Claims		NO
Inventive step (IS)	Claims		YES
	Claims	1-12, 17	NO
Industrial applicability (IA)	Claims	1-12, 17	YES
	Claims		NO

2. Citations and explanations

Reference is made to the following documents:

D1: WO-A-98/33925 (YALE UNIVERSITY) 6 August 1998 (1998-08-06)

D2: US-A-5 780 253 (SUBRAMANIAN VENKITESWARAN ET AL.) 14 July 1998 (1998-07-14)

D3: ITO T. ET AL.: "Two amidophosphoribosyltransferase genes of Arabidopsis thaliana expressed in different organs" PLANT MOLECULAR BIOLOGY, Vol. 26, 1994, pages 529-533, XP000990353, indicated in the application.

1. Novelty

The present application meets the requirements of PCT Article 33(2) since the subject matter of Claims 1-12 and 17 is novel.

2. Inventive step

The present application does not meet the requirements of PCT Article 33(3) since the subject matter of Claims 1-12 and 17 does not involve an inventive step.

2.1. Claims 1-5 and 17

Document D3 is considered to be the closest prior art to the subject matter of Claims 1-2. That document discloses two amidophosphoribosyltransferase proteins-DNA sequences of *Arabidopsis thaliana*.

The subject matter of the present application differs from the closest prior art by the cloning of an amidophosphoribosyltransferase of *Nicotiana tabacum*. The problem to be solved by the present application can therefore be seen as that of cloning amidophosphoribosyltransferases of a different plant specie.

The solution consists in the cloning of amidophosphoribosyltransferase of *Nicotiana tabacum* (SEQ ID NO:1 and 2).

The solution suggested in Claims 1-2 of the present application cannot be considered to be inventive (PCT Article 33(3)) for the following reasons:

It is clear from document D3 that PRPP amidotransferase proteins have already been isolated in animals, microorganisms and plants. Consequently, it is to be expected that *Nicotiana tabacum* also contains a protein of this type. Furthermore, D3 also shows that these PRPP amidotransferase proteins, from different origins, contain preserved areas (D3: Figure 3). It is clear from document D2 that the enzymes involved in the change of the nucleotide substance are suitable as targets for herbicides. This information would induce a person skilled in the art to use the DNA-protein sequence of *Arabidopsis thaliana* and by means of routine methods decode the DNA-protein sequence of *Nicotiana tabacum*. The subject matter of Claims 3-5 and 17 therefore also

does not involve an inventive step.

2.2. Claim 10

The subject matter of Claim 10 does not involve an inventive step (PCT Article 33(3)) for the following reasons:

D2 discloses a process for identifying substances which inhibit the activity of specific enzymes in plants (abstract, Claim 8 (a)). The process of D2 and the process of the present application consist of the same process steps. A person skilled in the art is therefore able to use this process in order to find substances which inhibit the PRPP amidotransferase.

2.3. Claims 7-9, 11 and 12

The subject matter of Claims 7-9, 11 and 12 does not involve an inventive step (PCT Article 33(3)) for the following reasons:

D1 discloses a process for identifying inhibitors of AdT activity (Example 5, page 46). The process of the present application is a result of the process of D1 and the use of routine methods.

3. Industrial applicability

The subject matter of Claims 1-12 and 17 is industrially applicable (PCT Article 33(4)).

4. Claim 9

Claim 9 is not dependent on itself, but rather on Claim 8.